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(71) Applicant (for all designated States except US): CALI-
FORNIA INSTITUTE OF TECHNOLOGY [US/US];
1200 East California Boulevard, Pasadena, CA 91125 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ANDERSON,
David, J. [US/US]; 2108 Glenview Terrace, Altadena, CA
91001 (US). MORRISON, Sean [CA/CA]; 1196 Arden
Road, Pasadena, CA 91106 (CA).

(74) Agent: ELRIFI, Ivor, R.; Mintz, Levin, Cohn, Ferris,
Glovsky and Popeo, P.C., One Financial Center, Boston,
MA 02111 (US).

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(54) Title: THE ISOLATION AND ENRICHMENT OF NEURAL STEM CELLS FROM UNCULTURED TISSUE BASED ON CELL-SURFACE MARKER EXPRESSION

(57) Abstract: The invention provides methods for the prospective identification, isolation, and self-renewal of neural stem cells from the mammalian peripheral nervous system and compositions of neural stem cells derived from uncultured tissue. Using flow-cytometry, neural crest derived cells of embryonic peripheral nerve were fractionated based on cell surface markers. The isolated p75⁺ P₀ cells from embryonic sciatic nerve were phenotypically and functionally indistinguishable from neural crest stem cells (NCSCs) previously isolated from neural tube explant cultures. Furthermore, freshly isolated p75⁺ P₀ cells gave rise to both neurons and glia when transplanted *in vivo*. Cell cycle analysis and BrdU labeling indicated that p75⁺ P₀ NCSCs persist in the peripheral nerve by undergoing self-renewing divisions after neural crest migration has ceased.